range at 174 river stations are given in Table VII. Hydrographs for typical points on seven principal rivers are shown on Chart V. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mis-

sissippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock on the Arkansas; and Shreveport, on the Red.—H. C. Frankenfield, District Forecaster.

CLIMATE AND OROP SERVICE.

By Mr. JAMES BERRY, Chief of Climate and Crop Service Divison.

The following summaries relating to the general weather and crop conditions during August are furnished by the directors of the respective sections of the Climate and Crop Service of the Weather Bureau; they are based upon voluntary reports from meteorological observers and crop correspondents, of whom there are about 3000 and 14,000, respectively:

Alabama.—Weather during first two decades generally favorable for growth and maturing of crops, except locally excessive and slightly damaging rains in middle and southern counties toward close of second decade; excessively hot weather during early part of last decade caused cotton to wilt and shed badly, and late corn and some minor crops to deteriorate rapidly; last day of month quite cool; rainfall generally deficient in northern and eastern counties.—R. P. Chaffee

deficient in northern and eastern counties.—F. P. Chaffee.

Arizona.—The weather was generally very warm, except in the western portion of the Territory; showery conditions prevailed during the greater part of the month, precipitation being above normal in the eastern portion. The supply of irrigation water was generally sufficient for the crops, which all did well and made good progress toward maturity. The ranges were in fine condition and afforded excellent grazing for stock.—M. E. Blystone.

Arkansas.—The temperature was about normal, with an excess of precipitation. Cotton made fair progress; it continued fruiting and blooming, but there was some complaint of shedding, rust, and blight; boll-worms and sharpshooters made their appearance, but were not general; the crop is still late and promises only a fair yield. An average crop of early corn was assured; the late was fairly promising. Considerable hay and fodder of excellent quality were secured. Sweet potatoes were promising. Late apples are scarce and of inferior quality. At the close of the month all late growing crops were in need of rain, especially late corn—O. C. Burrows.

California.—The temperature of the month was slightly below normal, but there were a few days of extremely high temperature, causing trifling injury to fruit and beans. Conditions were generally favorable for drying and maturing the heavy crops of deciduous fruits and grapes. The grain crop was practically all harvested by the close of the month and thrashing and hay baling were in progress. Hops and sugar beets were yielding

good crops.—Alexander G. McAdie.

Colorado.—Showers materially aided the supply of irrigation water.

Harvest of small grain made rapid progress and thrashing was general by the second decade, except in the higher districts. Corn made favorable growth and cutting had begun before the close of the month. Potatoes, sugar beets, and fruits did well, with indications of a large yield of late fruits and potatoes. Most of the second crop of alfalfa was secured and much native hay was stacked in prime condition; ranges were good and stock thrifty.—Charles E. Linney.

Florida.—Precipitation was insufficient by reason of unequal distribution. Some local heavy rains damaged cotton and vegetables and delayed haying. The most serious factor during the month was the hot weather during the last week. The hot sun, with intermittent showers, scalded plants and caused squares and leaves to fall. The first half of the month was quite favorable. The last decade was damaging to cotton; picking began during the last decade, becoming brisk during the closing days; the crop will be much below the average. Corn, cane, citrus fruits, pineapples, and minor crops are good.—A. J. Mitchell.

Georgia.—During the first three weeks well-distributed showers were of almost daily occurrence and crops of all kinds made favorable progress. An excessively warm and dry week followed, during which vegetation suffered seriously, especially cotton. Under the influence of constant sunshine and high temperature cotton shed and rusted considerably. Picking was becoming general at the close of the month, with prospects unfavorable for an average yield.—L. B. Marbury.

unfavorable for an average yield.—J. B. Marbury.

Idaho.—Conditions were generally favorable for irrigated crops, though in some localities canals failed to carry sufficient water. Haying, harvesting, and thrashing progressed rapidly. Fruit made satisfactory advance, and shipping was in progress at the close of the month. Ranges suffered somewhat from drought.—S. M. Blandford.

Illinois.—Droughty conditions prevailed over a portion of the southern district throughout the month. They were most pronounced in the extreme southern tier of counties, as rainfall in ample quantities occurred over the other portions of the State. Corn was generally in a thrifty condition at the end of the month, although from two to three weeks backward. Oats were harvested and thrashed, mostly under favorablet conditions.—Wm. G. Burns.

Indiana.—Precipitation during the month was ample and fairly well distributed. Excepting in the last decade the temperature, particularly at night, was too low for rapid growth of crops. Thrashing wheat and oats

completed early in the month, yield light. Corn, which was one to three weeks behind, made slow growth and, except in north section, promised less than average crop. Late potatoes promised fair crop; apple crop light, and fruit falling. Canneries started on tomatoes and sweet corn.—
W. T. Blythe.

Iowa.—Month cooler than usual, with double the normal rainfall and deficient sunshine. Prevalent humidity and cloudiness during first and last weeks delayed thrashing and other fieldwork, but fair progress was made between the 10th and 24th. Growth of corn was unusually slow, causing much anxiety for the future safety of the crop, on account of its belated condition. Thrashing returns unsatisfactory, except timothy seed. Good progress in fall plowing. Early apple crop good.—John R. Same

Kansas.—Early corn advanced from roasting ear stage at the first of the month to cutting stage by the end; late corn grew rapidly, advancing through the silking and tasseling to the earing stage, and was well eared before the close of the month. Prairie grass made fine growth and haying was pushed when weather permitted. Cutting of third crop of alfalfa progressing at the end of the month. Fall plowing and thrashing continued. Apples were abundant in the south, and fine ones were being marketed from Shawnee County.—T. B. Jennings.

Kentucky.—The temperature during most of the month was too low for best results. The rainfall was very unevenly distributed and drought was severe in some localities. Crops made fair progress, however, over the greater portion of the State. Corn and tobacco were very good in central, southern, and most of the western counties, but badly damaged in northeastern counties. Both crops were being cut rapidly. Hemp was short. Plowing retarded by drought. Wheat acreage reduced.—
H. B. Hersey.

Louisiana.—Frequent showers during the first decade were unfavorable for cotton. A rapid growth in the plant resulted, but very little fruit was developed. Less rainfall and more sunshine during the second decade caused some improvement, while the weather of the third decade improved the crop in some localities and injured it in others. Ideal weather for the sugar cane crop prevailed throughout the month and a rapid growth resulted. Rice developed rapidly and is very promising. Corn is doing well. Fall truck gardens are being planted.—I. M. Cline.

Maryland and Delaware.—The cool, wet, and cloudy weather interfered with farm work and prevented rapid growth or maturity. Corn continued backward, on account of low temperatures and insufficient cultivation. Final harvest of wheat gave light yields, and of oats light to fair returns. Buckwheat grew nicely. Pastures continued good. The late hay harvest was excellent in quality and quantity. Much tobacco was cut and housed; the crop was good, but curing was not satisfactory at all times. Apples were promising. Tomatoes and melons yielded below average. Potatoes were an abundant crop, but the loss by rot was large. Fall plowing made about an average advance.—Oliver L. Fussig.

Michigan.—Meadows, pastures, sugar beets, and beans on high land made good progress. Wet weather and cool nights caused slow growth of corn and were detrimental to fruit and to beans and potatoes on low lands. Some oats and peas were damaged by heavy rains. At the close of the month apples continued fairly promising, and corn, although backward, was quite thrifty.—C. F. Schneider.

ward, was quite thrifty.—C. F. Schneider.

Minnesota.—Several general rains and much showery and cloudy weather during the month. Low temperatures for the season occurred early in the month, again before the middle of the month, and also during the last week. Oat harvest was general and spring wheat harvest was begun in the southern half about the 1st. The cutting of spring wheat, oats, barley, and flax was finished by the 25th, except the late crops, which were still being cut at the end of the month. Stacking and shock thrashing were carried on as rapidly as possible after harvest, but wet weather caused much delay, and toward the end of the month much shocked grain was suffering injury from dampness. In parts of the south the fields were too wet for the movement of binders and thrashers. Corn was backward all the month.—T. S. Outram.

Mississippi.—The mean temperature and the average rainfall for the month were slightly above normal. Cotton generally made a good growth and fruited well, although it continued about three weeks late. Rust and shedding were general, but serious only in some of the southern counties. Bolls began to open about the 15th and by the close of the month picking was general in the south. A splendid crop of corn maured nicely. Much hay and fodder were saved in good condition. Minor crops did well. Fall crops were planted and generally came up to good stands.—W. S. Belden.

Missouri.—In a few eastern and southern counties corn suffered considerably from drought, but elsewhere there was generally sufficient

moisture, and, although cool nights somewhat retarded the growth of late corn, the crop, as a whole, improved steadily during the month. Cotton also improved considerably; late forage crops generally did well, and pastures continued in good condition, except in portions of the southern sections. Plowing for wheat was considerably retarded by dry weather in the eastern and southern counties.—A. E. Hackett.

Montana.—Cool, wet weather delayed harvesting somewhat, but at the end of the month the greater part of the winter grain had been cut, thrashing had commenced, and the spring grain harvest was well advanced; yields ranged from average to very good. The second crop of alfalfa was good, but the yield of hay was considerably below the average, except in some localities in the southwestern counties. Potatoes and other minor crops will give good yields.—Montrose W. Hayes.

Nebraska.—Harvesting was about completed during the first half of August, although showery and unfavorable weather prevailed. Thrashing, stacking, and haying were delayed by wet weather, some grain in shock was damaged, and some hay almost ruined by the rain. A large amount of wild or prairie hay was secured in the last half of the month. Grass in pastures and on the ranges was excellent throughout the month. Low temperature was unfavorable for the rapid growth of corn, but it made a healthy, average growth. The heavy rainfall caused the corn to ear heavily, with large, well-filled ears, and to continue green and growing, with but slow progress toward maturity. Rapid progress was made with fall plowing.—G. A. Loveland.

Nevada.—A very dry month with about normal temperature. Fine weather throughout the month for harvest work, which progressed without interruption. Good crops of hay and grain were secured in excellent condition. Irrigated crops made fair progress, but pastures and range grass dried up rapidly on account of drought. Water very low and scarce at close of the month. Apple crop very promising.—J. H. Smith.

New England.—The weather was exceptionally cool, the mean temperature being the lowest for August of official record. The rainfall was near the average and, with a few exceptions, well distributed. There was a deficiency in sunshine, which, combined with the uniformly low temperature, was unfavorable to crop growth and to harvesting. Frosts in northern sections, near the close of the month, caused some damage to late vegetables and to corn, but generally speaking crops are in good condition, and harvesting progressing favorably.—J. W. Smith.

New Jersey.—The month was abnormally cool and wet; very destructive thunderstorms occurred in the northern portion of the State, doing great injury to crops and tree fruits. Truck crops in the southern sections were seriously injured; melons of all kinds, lima beans, and tomatoes suffered the most.—Edward W. McGann.

New Mexico.—The month was generally unfavorable for crops and ranges, owing to high temperature and deficient rainfall. In the southwest portion of the Territory torrential rains fell, causing floods and extensive damage to towns, railroads, and crops in the lowlands and valleys. In the mountain districts local showers replenished streams and furnished a fair supply of water for irrigation, but in other portions the deficiency was marked, especially on the prairies and ranges, where the water in wells, springs, and water holes was quite low. At the close of the month, although the month was unfavorable, range stock were still in very fair condition.—J. B. Sloan.

New York.—The coolest August in fifteen years; light frosts on the 8th; not a very warm day during the entire month; precipitation very heavy and excessive, causing floods, and damaging oats and barley; wheat, rye, and hay large yields and housed in good condition; buckwheat fine, but badly lodged; tobacco damaged by gales, hail, and floods; large quantity of apples blown from trees; corn nearly a failure; beans damaged by rust; potatoes declined rapidly from blight and rot; plowing well advanced.—R. G. Allen.

North Carolina.—During the larger portion of August conditions were highly favorable for the growth of crops, which improved steadily. The rainfall during the first two decades was frequent, but not heavy, except in the eastern district, where some damage resulted from excessive rains, which, however, were confined to the immediate coast. Cotton improved steadily, grew to average size, fruited well, and at the close of the month was opening rapidly, with picking under way. Corn eared well; much fodder was saved. Cutting and curing tobacco continued uninterruptedly, with fairly good results. All minor crops, especially peanuts, rice, sweet potatoes, and field peas, grew well. Fruit, except grapes, was inferior.—C. F. von Herrmann.

North Dakota.—The month was unfavorable for maturing and harvesting grain. Cool weather, with heavy and frequent rains, caused a very rapid growth of late sown crops, but at the same time made the ground so wet that it was difficult to get on it with harvesting machinery to care for early sown grain. Considerable hay was damaged and some spoiled by being wet before it could be stacked.—B. H. Bronson.

Ohio.—All crops were injured by the dry weather which prevailed until near the close of the month; there were heavy rains in north during the last week, but only light to moderate in central and south. Corn is fairly promising in north, but only a light crop can be expected in central and most south counties. Late potatoes, gardens, tobacco, clover, buckwheat, and apples injured by drought, and plowing for wheat delayed.—

J. Warren Smith.

Oklahoma and Indian Territories. - Early corn matured and being cut;

late corn filling well. Fall plowing well advanced. Cotton made rapid growth, was well bolled, and picking in progress. Wheat and oat harvest completed. Haying continued, with good yields. Third cutting of alfalfa in progress. Millet, broom corn, sweet potatoes, melons, and fruit matured and being gathered and marketed, with fair to good yields. June corn, cane, kaffir corn, castor beans, turnips, and late potatoes in fair to good condition.—C. M. Strong.

Oregon.—The weather during the month was generally favorable for cutting and thrashing fall and spring grain, and at the close of the month both of these crops were nearly harvested. Wheat this year is below average in quantity, but the quality is excellent. Oats yielded exceptionally well. Hops were ready to pick by the last of the month; this crop is below average, and there is more mold than common in the yards. Fruit made good advance, except apples, which are quite uneven.— Edward A. Beals.

Pennsylvania.—The coldest August on record, and the average precipitation was 35 per cent in excess of the normal. The conditions were generally unfavorable to agricultural interests. Continued low temperature materially retarded the advance of corn and tobacco, and frequent and copious showers delayed haying, harvesting, and plowing, caused rust in oats and rot and blight in potatoes, and seriously injured a large acreage of oats by causing them to sprout after being put in shock.—H. A. McNally.

Porto Rico.—The precipitation during the month was considerably above the normal, but well disturbed throughout the month. High winds during the middle of the month caused some damage to fruit trees, coffee, and small crops, but in general the weather was favorable and all crops were in excellent condition at the close of the month. Cane has improved steadily and is now in normal condition. Coffee is maturing slowly and promises a larger and better crop than last year. The experimental cotton crop continues developing satisfactorily. Planting of small crops and cane of gran cultura has been active. Very little tobacco has been sown. Fruits of the season and small crops have been plentiful. Pasturage is abundant and stock is doing well.—E. C. Thompson.

South Carolina.—The first twenty days had copious precipitation and even temperatures, conditions exceedingly favorable for crop growth and development, with marked improvement in cotton, corn, rice, and grass for hay, as well as in all minor crops, but the conditions were unfavorable for cultivation of field crops. The last nine days were excessively hot and dry, causing cotton to rust and shed squares and young bolls, and grown bolls to open rapidly, some prematurely. Corn also deteriorated, but minor crops maintained their fine condition to the close of the month. Tobacco curing was finished and rice harvest begun. Cooler weather and numerous showers on the 30th-31st brought relief, and partially checked deterioration.—J. W. Bauer.

South Dakota.—Frequent rains somewhat retarded haying and harvesting, stacking and thrashing of wheat, oats, and spelt, and injured some grain in shock; harvest was practically completed in the second decade. Much hay was secured. Corn, though healthy and promising, was backward and made but moderate progress toward maturity; the earliest was glazing by the 31st. Flax did well; considerable early was cut. Potatoes were mostly in good condition; rains caused some rot locally. Wheat yields were variable; oat, spelt, and barley yields generally good.—S. W. Glenn

Tennessee.—Favorable conditions prevailed until near the end of the month, when drought set in over considerable areas, seriously affecting growing and maturing crops. At the end of the month early corn promised fine yields, as a rule, but the late crop was needing rain very badly; cotton, peanuts, and potatoes were showing the bad effects of dry weather; tobacco, which was a good crop, was being housed in fine condition; large quantities of hay had been saved; wheat thrashing, generally with light results, was about finished, while oats proved to be a fairly good crop; apples were barely an average crop.—H. C. Bate.

Texas.—Weather conditions, as a rule, were quite favorable for crop development during the month, although the moisture supply was irregularly distributed through the month in some sections. Cotton crop made good progress, fruiting exceptionally well, but by the end of the month insect pests were doing great damage. Cotton began to open latter part of month and some picking was done. Other growing crops did well. Thrashing of wheat, rye, and oats completed with satisfactory results. Rice did well. Hay and forage crops excellent; pasturage abundant; fruits below average; gardens not very good.—W. H. Alexander.

Utah.—Abnormally high temperatures prevailed throughout the month excepting from the 26th to the 28th when the weather was unseasonably cool, with considerable frost in the high districts. The harvesting of fall grain was completed and thrashing was well under way. The cutting of spring grain was in progress. The yields of fall grain were below the average, especially on dry farms, while spring grain was fully up to the usual yield. A fair third crop of alfalfa was being harvested. Corn was silking and tasseling, and beets on irrigated soil were making good growth. Potatoes, tomatoes, and fruit of all kinds were marketed, yields being fair. Ranges were poor and irrigation water was scarce.—

R. J. Hyatt.

Virginia.—While the month was somewhat cooler than usual, with abundant rainfall in those districts east of the Blue Ridge, the progress of outstanding crops was very satisfactory, especially corn and grass.

However, fieldwork was more or less interrupted, and at the close of the month less than the usual amount of fall fallowing had been completed. There was a fine second growth of grass, considerable of which was cut between the 15th and 20th. Tobacco did well, and the apple crop

was promising .- Edward A. Evans.

Washington.—Although the precipitation was above the average, and that of the eastern section greatly above, yet it occurred mostly within a period of four or five days, so that the greater part of the month was dry and favorable for late haying and the harvesting of grain. Winter wheat thrashing and spring wheat cutting, which generally begun on the 15th, was not interrupted by rain until the 22d, and again on the 25th. Then a rainy spell, in which from one-half an inch to an inch or more of moisture fell throughout the wheat belt, stopped cutting and thrashing, but did no material damage. It was of great benefit to pastures and late vegetables and roots.—G. N. Salisbury.

West Virginia.—Harvesting was practically completed during the first two weeks, and hay was secured in good condition with about an average yield, and oats with rather a poor yield. At the close of the month corn, millet, buckwheat, cow peas, and gardens were doing fairly well, but all had suffered considerable injury from the dry weather; potatoes were

In the following table are given, for the various sections of the Climate and Crop Service of the Weather Bureau, the average temperature and rainfall, the stations reporting the highest and lowest temperatures with dates of occurrence, the stations reporting greatest and least monthly precipitation, and other data, as indicated by the several headings.

The mean temperatures for each section, the highest and

being dug with a fair yield, and fruit was very scarce, except grapes and apples in some counties.— $E.\ C.\ Vose.$

Wisconsin.—The month was a very discouraging, not to say disastrous, one to farmers, on account of the excessive precipitation and the continued cool weather. Much grain cut early in the month with the expectation of thrashing from the shock, did not dry out, and in some localities was a total loss. Corn made but little improvement and at the end of the month was from ten days to two weeks behind the average condition. The wet, cold weather favored the development of potato blight, which became quite general during the last week of the month. Tobacco made very excellent growth, and as the month closed a very large crop was nearing maturity.—W. M. Wilson.

Wyoming.—The month was favorable for the harvest of a good crop of native hay, and by the close of the month the third crop of alfalfa had been harvested over the earlier sections and the second crop over practically all of the later sections. Ranges continued good over most of the State, especially the southern half of the State, but grasshoppers were numerous and destructive over some sections of the eastern and northern counties. The water supply of the season was unusually good.—

W. S. Palmer.

lowest temperatures, the average precipitation, and the greatest and least monthly amounts are found by using all trust-worthy records available.

The mean departures from normal temperature and precipitation are based only on records from stations that have ten or more years of observation. Of course this number is much smaller than the total number of stations.

Summary of temperature and precipitation by sections, August, 1903.

Section.	Temperature—in degrees Fahrenheit.								Precipitation—in inches and hundredths.					
	Section average.	Departure from the normal.	Monthly extremes.						average.	from nal.	Greatest monthly.		Least monthly.	
			Station.	Highest.	Date.	Station.	Lowest.	Date.	Section av	Section avera Departure fro	Station.	2000	Station.	Amount.
Alabama Arizona Arkansas California Colorado	83. 5 78. 7 72. 6 66. 7	+1.0 +0.2 -0.4 -1.1 -0.5	Lock No. 4, Newbern Parker (Mohawk Summit Spielerville Imperial Blaine (Middleburg	101 120 120 103 124 105 102	28 16\(\) 20\(\) 4 16 5 25\(\)	Riverton	39 47 16 27	31 1 31 15 5 days.	3. 57 1. 88 4. 56 0. 02 1. 46	$\begin{array}{c} -1.26 \\ +0.13 \\ +1.49 \\ -0.04 \\ -0.16 \end{array}$	Bisbee 6. Amity 11. Crescent City 0. Holyoke 5.	92 50	Tuseumbia (Agua Caliente (Yuma Brinkley Many stations Grand Junction	T. T. 0.95 0.00 0.02
Florida Georgia Idaho Illinois Indiana Iowa Kansas Kentucky Louisiana Maryland and Delaware Michigan Minnesota Missouri Montana Nebraska New England* New England*	80. 7 66. 2 72. 6 72. 0 69. 1 75. 3 75. 5 81. 7 71. 0 63. 1 63. 6 80. 6 74. 5 64. 2 70. 5 69. 4 61. 8	+1.0 +1.7 -1.3 -1.1 -3.1 -1.9 -0.4 -2.9 -3.3 +0.6 -1.4 -1.5 -2.4 -0.1 -3.1 -2.9 -3.3 -0.5 -0.5 -0.6 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.6 -0.4 -0.4 -0.6 -0.4 -0.4 -0.6 -0.4 -0.6 -0.4 -0.4 -0.4 -0.6 -0.4 -0.4 -0.4 -0.4 -0.6 -0.4 -0.4 -0.4 -0.4 -0.5 -0.4 -0.6 -0.4 -0.4 -0.4 -0.4 -0.6 -0.4 -0.4 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5 -0.4 -0.5	Macclenny Douglas West Point Lewiston New Burnside 3 stations Logan 3 stations Libertyhill 3 stations Berrien Springs Currie Okolona Marblehill Billings 3 stations Rioville Norfolk, Mass. Bridgeton	102 100 101 105 100 101 100 95 94 101 102 105 100	285 257 276 18 24 24 24 5,6 4,24 9 25 24 25 24 19 25 24 21 22 23 24 22 23 24 25 25 25 24 25 25 26 27 28 29 29 20 20 20 20 20 20 20 20 20 20	Wewahitchka Diamond Chesterfield Winnebago (Valparaiso) Auburn Ogden Achilles Fords Ferry Collinston Deer Park, Md. Baraga Tower Duck Hill, Ripley Edwards, Montreal 3 stations Agate Potts Patten, Me. Charlottel.urg, Lay-	25 40 43 43 41 39 49 56 37 31 29 53 43 80 35	26 31 28 7 12 31 29 31 21 8 15 31 21 5 days. 24 25 28, 29	6. 84 5. 56 0. 854 3. 85 6. 64 5. 19 3. 27 4. 72 4. 65 4. 54 0. 109 6. 95	-0.84 -0.38 -1.44 +0.62 +3.43 +2.07 -0.56 -0.74 +1.52 +2.39 +1.20 +1.21 +2.18 +0.54 +0.54 -0.74 -0.11 -0.11 -2.38	Kishwaukee 9. Mount Vernon 7. Woodburn 17. Topeka 12. Loretto 6. Houma 11. Bachmans Val'y, Md 8. Alma 7. Grand Meadow 8. Natchez 8. Maryville 11. Ridgelawu 3. Omaha 12.	85 07 29 17 74 69 01 12 34 84 33 05 63 62 50 32	Jupiter Newnan Blue Lakes Cairo Greensburg Toledo Wallace Blandville Rayne Boettcherville, Md. Charlevoix Wyoming Macon Marblehill Parrot Agate 15 stations Bar Harbor, Me. Clayton	2. 47 1. 26 T. 0. 81 1. 92 2. 55 0. 73 0. 66 1. 80 3. 18 0. 51 1. 07 1. 17 0. 08 1. 11 0. 00 0. 75 4. 30
New Mexico New York North Carolina North Dakota Ohio Oklahoma and Indian Territories. Oregon Pennsylvania Porto Rico South Carolina South Dakota Tennessee Texas Utah Virginia Washington West Virginia Wisconsin Wyoming	62. 4 76. 7 63. 7 70. 7 80. 5 65. 0 67. 2 79. 4 80. 6 68. 3 77. 2 82. 1 71. 8 73. 6 64. 7 71. 4 64. 0	+0.6 -4.7 +0.6 -1.8 -0.8 -0.7 -1.0 -2.9 -1.12 -2.1 +0.7 -0.5 +1.4 -1.1 -1.2 -0.2 -4.0 0.0	Alamogordo, San Marcial. Elmira. Selma. Minot. Thurman Taloga, Okla. Covote California. San German Gaffney. Pedro. 4 stations (Bonham (College station St. George. Newport News. Zindel. Green Sulphur Spr'gs Grand Rapids. Thermopolis.	109 99 100 105 110 99 110 110 105 109 105	1 25 25 26 24 27 18 25 5 4 24 28 25 17 6 25 21 28	ton. Winsors {Paul Smiths } Axton Linville 4 stations Oberlin Jefferson, Okla. Deschutes Dushore Cidra Seivern 3 stations Hohen wald (Rhineland Fort Davis Woodruff McDowell Wilbur Bayard (Tomahawk Prentice South Pass City	33 38 32 32	28 67 81 10, 11 8 10 3 8 17 22 9–10 31 21 21 21 21 21 21 21 21 21 2	1, 99 6, 10 5, 26 4, 90 2, 72 0, 86 5, 29 9, 06 5, 29 7, 15 8, 48 3, 27 2, 18 0, 38 4, 76 1, 11 2, 64 6, 51 1, 01	-0.72 +2.24 -0.59 +3.20 +0.40 -1.21 +0.20 +1.50 -1.64 -0.54 +0.22 -0.41 +0.69 +0.34 -1.00 +3.74 +1.01	Wappingers Falls 11. Grafton 6. Colebrook 9. Tablequah, Ind. T 7. Doraville 2. Saegerstown 8. Morovis 19. St. Stephens 12. Leola 7. Greeneville 7. Port Lavaca 17. Lund 2. Witkersous 9. Cheney 3. New Cumberland 5. Grand River Locks 10.	35 75 33 06 31 05 40 83 58 53 69 70 39 30 02	Albuquerque Harkness Southern Pines Churchs Ferry Plattsburg Grand, Okla Detroit Lock No. 4 Isabela Clarks Hill Hotch City Dyersburg Houdo City 5 stations Bristol Silvana Pt. Pleasant Manitowoc Basin, South Pass City.	0. 02 0. 99

^{*} Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut.